

STAT 404 Design and Analysis of Experiments Fall 2018

Lecture times: MW 15:00-16:20 Room: ESB 2012
 Lab hour: Mon 17:00, ESB1046, Wed 17:00 ESB1046, Fri 11:00 ESB 1042, Wed 14:00 ESB1042
 Instructor: Dr. H. Joe, Office: ESB Rm 3138, e-mail: hjoe@unixlab.stat.ubc.ca

Web site: <http://unixlab.stat.ubc.ca/~stat404> (password protected)

Text book: Tamhane, A.C., Statistical Analysis of Designed Experiments: Theory and Applications, Wiley; e-version at UBC through Wiley Online Library.

Prerequisite: Stat 305 (statistical inference) + course in matrix algebra

Co-requisite: Stat 306 (regression)

Statistical software: R www.r-project.org or cran.stat.sfu.ca and SAS ([SAS OnDemand for Academics or University edition https://www.sas.com/en_us/learn/academic-programs/software.html](https://www.sas.com/en_us/learn/academic-programs/software.html)). It is your choice to use just one of these software or both for doing homework. Knowledge of SAS programming is sometimes listed as a qualification for jobs in statistics.

This is a fourth year course in which there is the opportunity to make good use of and apply theory from previous courses, especially linear / matrix algebra and statistical inference. New ideas include comparison of designs of experiments and simultaneous statistical inference. Exposure to computer software and report writing are useful preparation for future work.

Homework: Regular WebWork homework assignments, which means that questions regarding a complete data analysis will not be available. There may also be some WebWork questions from the lab material.

Team project: Project with submission of experiment (e.g., factorial design for paper airplane or paper helicopter) and data in September, and a written project report due in the middle of the term. Team size should be about 3.

Exams: One midterm and a final exam. The date for the midterm is Wed. Oct. 17. If the midterm exam is missed, its weight is transferred to the final exam. (In the past, students who missed the midterm exam did not get a good grade for the course.)

Course Evaluation: Most of the emphasis will be on conceptual understanding and applications. However there will also be evaluation of math ability and theoretical statistics skills (e.g., through [optional] homework problems and the harder exam questions) as a means of assessing ability for graduate study (MSc level) in statistics. Tentatively the weighting scheme is

Midterm 23%, Final 50%, Homework+Labs 20%, Project 7%

All components of the course must be satisfactory to pass this course.

Use of Canvas: (a) For Webwork in canvas.ubc.ca, click on the WebWorK link for Stat404; (b) same for piazza.